Spot Safety Project Evaluation

Project Log # 200512219

Spot Safety Project # 09-97-209

Spot Safety Project Evaluation of the Installation of a Left Turn Lane on SR 1103 (Lewisville-Clemmons Rd) at its Intersersection with Sedalia Dr. Forsyth County

Documents Prepared By:

Safety Evaluation Group
Traffic Safety Systems Management Section
Traffic Engineering and Safety Systems Branch
North Carolina Department of Transportation

Principal Investigator

_____ 6/16/2006
Brad Robinson, EI Date

Traffic Safety Project Engineer

Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 09-97-209 – SR 1103 (Lewisville-Clemmons Rd) and Sedalia Dr. in Forsyth County.

Project Information and Background from the Project File Folder

The spot safety project improvement countermeasure chosen for the subject location was the installation of a left turn lane on SR 1103 (Lewisville-Clemmons Rd) at Sedalia Drive. SR 1103 and Sedalia Dr. are both two-lane facilities at the subject location with speed limits of 35 and 45 mph, respectively.

The initial statement of problem was that accidents were due to vehicles slowing or stopping to turn left onto Sedalia Drive from a single approach lane on SR 1103 with a high volume of opposing traffic.

The initial crash analysis was conducted from August 1, 1993 to December 1, 1997, which included 22 southbound Rear-End Crashes.

The final completion date for the improvement at the subject intersection was on November 16, 1998 with a total cost of $45,000.00.

Naive Before and After Analysis

After reviewing the spot safety project file folder along with all the crashes at the subject location, the crash data omitted from this analysis to consider for an adequate construction period was from September 1, 1998 through January 1, 1999. The before period consisted of reported crashes November 1, 1994 through August 31, 1998 (3 years, 10 months) and the after period consisted of reported crashes from February 1, 1999 through November 30, 2002 (3 years, 10 months). The beginning date for this analysis was determined by construction of a right turn lane on SR 1103 at the subject location in 1994.

The treatment data consisted of all crashes on a strip of SR 1103 from 150 feet south of the turn lane taper (MP 3.1) to 150 feet north of the left turn lane and turn lane taper (MP 3.25). *Please see attached location map and photos for further details.*

The following data table depicts the Naive Before and After Analysis for the treatment location. Please note that southbound Rear-End Crashes related to the intersection were the target crashes for the applied countermeasure.

Treatment Information			
	Before	After	Percent Reduction (-) Percent Increase (+)
Total crashes	29	4	-86.2
Total Severity Index	6.68	1	-85.0
Target Crashes	20	0	-100.0
Target Crashes Severity Index	4.33	0	-100.0
Volume	13,700	14,000	2.2

Injury Summary		
	Before	After
Fatal Injuries	0	0
Class A Injuries	1	0
Class B Injuries	1	0
Class C Injuries	17	0
Total Injuries	19	0

The naive before and after analysis at the treatment location resulted in an 86 percent decrease in Total Crashes, a 100 percent decrease in Target Crashes, and an 85 percent decrease in the Total Severity Index. The before period ADT year was 1996 and the after period ADT year was 2000.

Results and Discussion

The naive before and after analysis involving the comparison of treatment actual before data versus treatment actual after data resulted in an 86 percent decrease in Total Crashes and a 100 percent decrease in Target Crashes. The total severity index decreased 85 percent and injuries of all type dropped to zero. The summary results above demonstrate that the treatment location appears to have had a significant decrease in both Total Crashes and Target Crashes from the before to the after period.

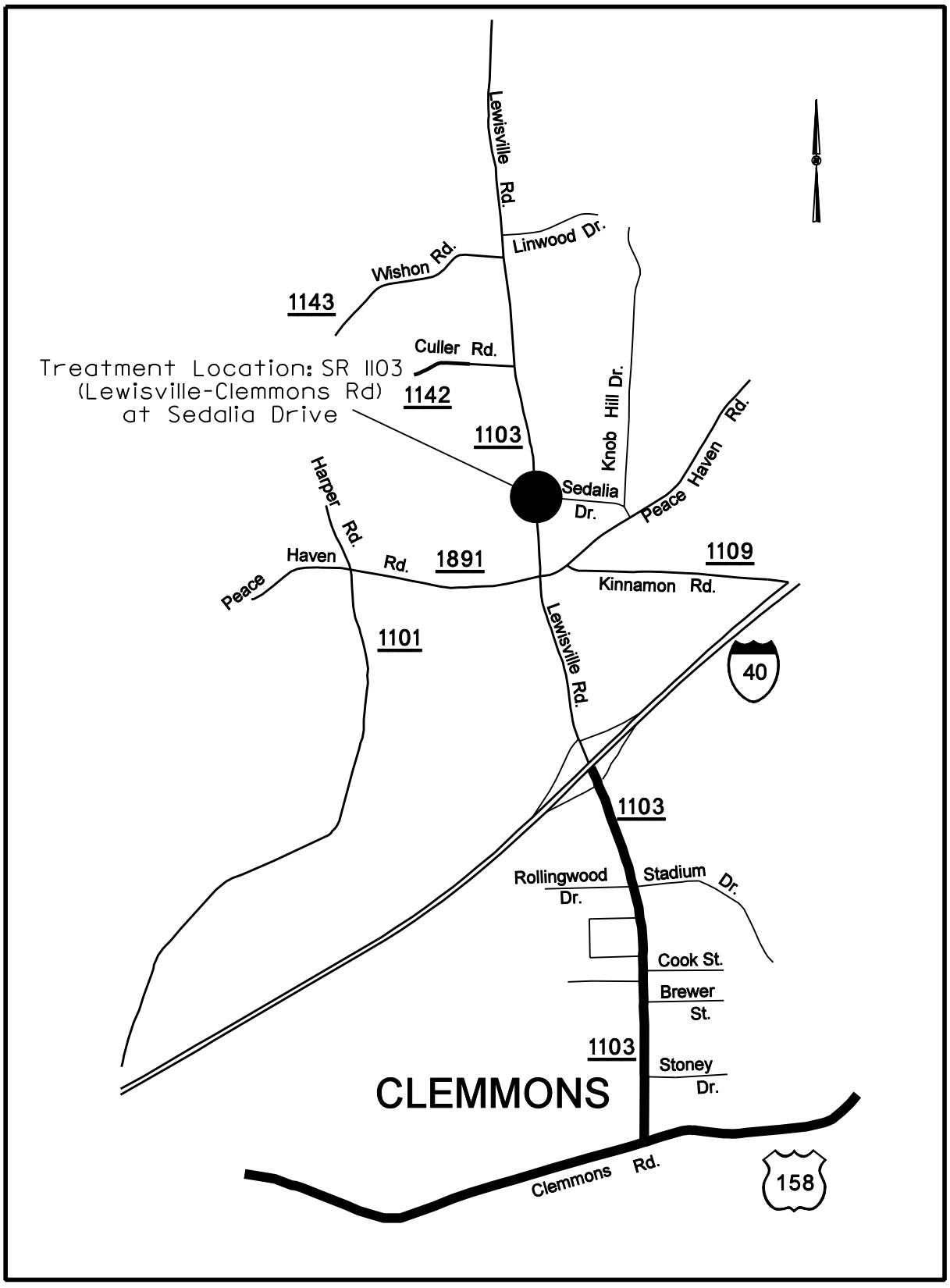
Referencing the *Collision Diagrams* and the previous table, it is apparent that the installation of the left turn lane helped to decrease rear-end crashes involving southbound SR 1103 vehicles waiting to turn left at Sedalia Dr. In the before period there were 20 rear-end crashes at the entrance caused by a southbound vehicle on SR 1103 waiting to turn left at the intersection. In the after period there were no crashes caused by southbound traffic turning left at the intersection.

Again referencing the *Collision Diagrams*, the non-target crashes near the intersection do not appear to follow any pattern in either the before or after period. The chosen countermeasure at this location appears to have alleviated the crashes effectively without developing a new crash pattern.

Please see the attached *Treatment Site Photos*. Photos are provided for all three approaches to the subject location.

As the Safety Evaluation Group completes additional spot safety reviews for this type of countermeasure, we will be able to provide objective and definite information regarding actual crash reduction factors for this type of intersection.

Location Map
Forsyth County
Evaluation of Spot Safety Project
#09-97-209



TREATMENT SITE PHOTO TAKEN 5/4/2006

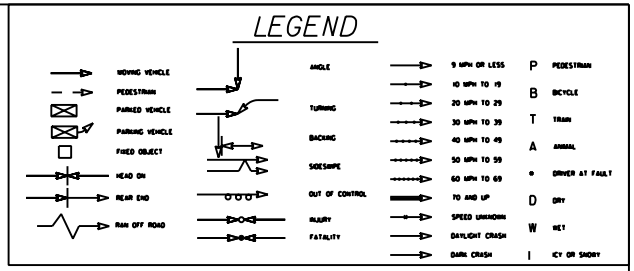
Traveling North on SR 1103 (Lewisville-Clemmons Rd)

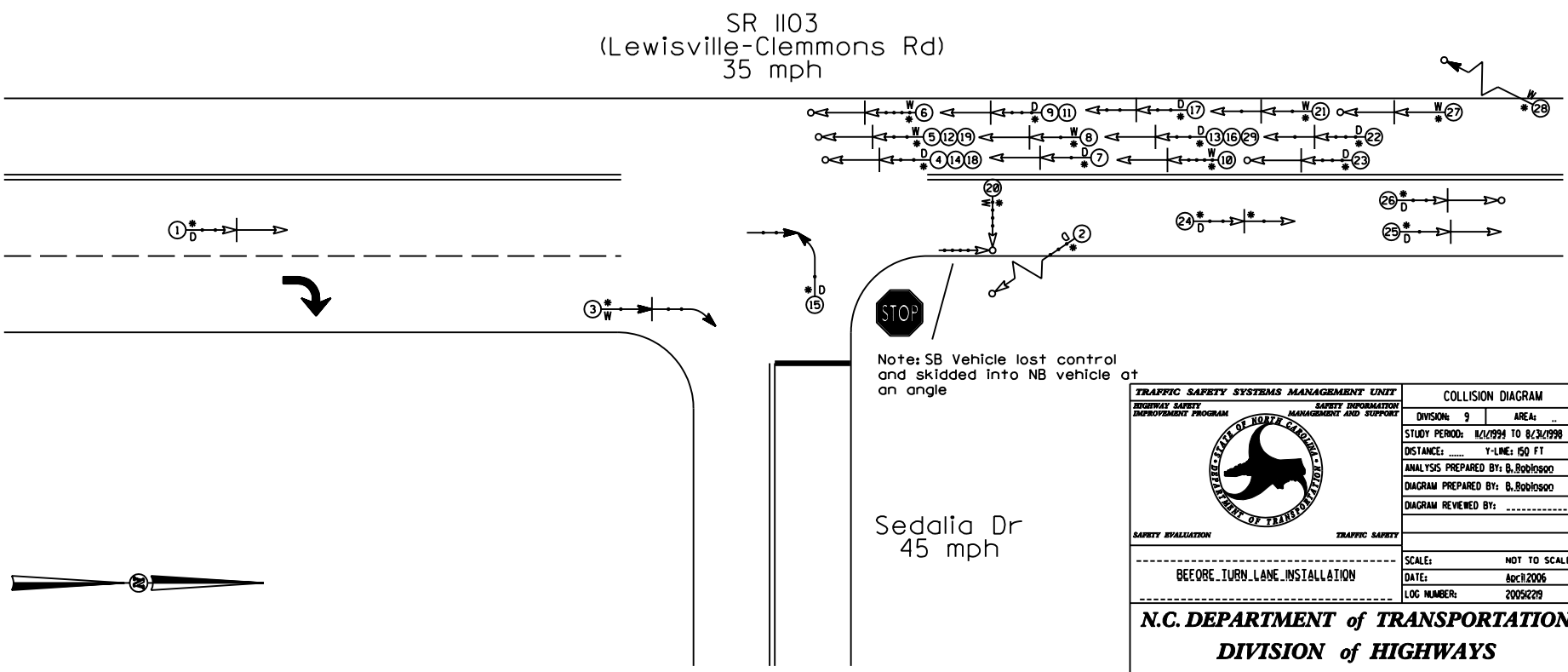
Traveling South on SR 1103

Traveling South on SR 1103 (Lewisville-Clemmons Rd)

Traveling West on Sedalia

Forsyth County
SR 1103 (Lewisville-Clemmons Rd) and SR 1260 (Sedalia Dr) Treatment Site in the Before Period From 11/1/1994-8/31/1998





Note: SB Vehicle lost control and skidded into NB vehicle at an angle

TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT

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SAFETY EVALUATION | TRAFFIC SAFETY

BEFORE TURN LANE INSTALLATION

COLLISION DIAGRAM	
DIVISION: 9	AREA: ..
STUDY PERIOD: 11/1/1994 TO 8/31/1998	
DISTANCE:	Y-LINE: 150 FT
ANALYSIS PREPARED BY: B.Robinson	
DIAGRAM PREPARED BY: B.Robinson	
DIAGRAM REVIEWED BY: ----------	
SCALE:	NOT TO SCALE
DATE:	April 2006
LOG NUMBER:	20056219

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
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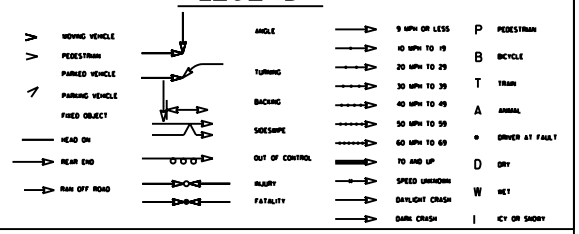
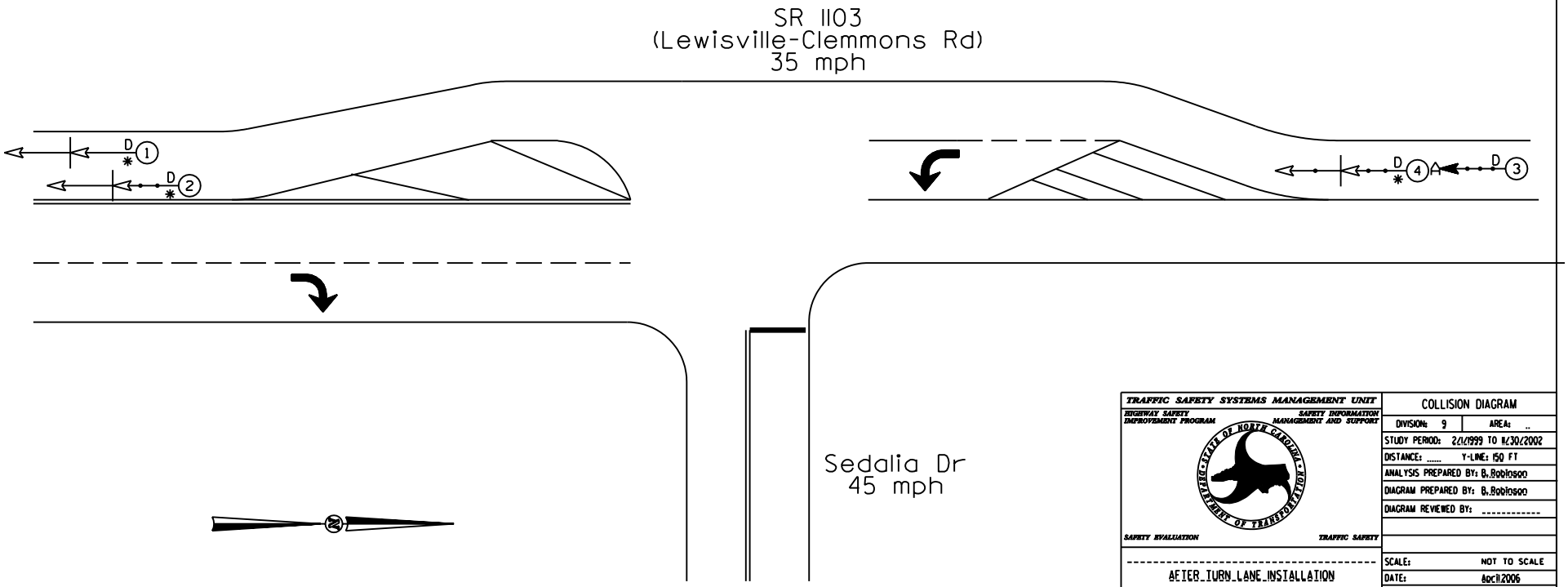
Forsyth County
SR 1103 (Lewisville-Clemmons Rd)
and SR 1260 (Sedalia Dr)
Treatment Site in the After Period
From 2/1/1999-11/30/2002

LEGEND





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STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION ·

SAFETY EVALUATION | TRAFFIC SAFETY

AEIER_TURN_LANE_INSTALLATION

COLLISION DIAGRAM

DIVISION: 9	AREA: ..
STUDY PERIOD: 2/1/1999 TO 11/30/2002	
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ANALYSIS PREPARED BY: B.Robinson	
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